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HORSE CREEK WATERSHED

LEAFY SPURGE TREATMENT ENVIRONMENTAL ASSESSMENT

A SUPPLEMENT TO

THE NORTH PLATTE RIVER AREA

DESIGNATED NOXIOUS WEED TREATMENT PROGRAM

ENVIRONMENTAL ASSESSMENT RECORD

September, 1979

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HORSE CREEK WATERSHED

LEAFY SPURGE TREATMENT ENVIRONMENTAL ASSESSMENT

I. BACKGROUND AND SUMMARY

In 1979 approximately 30 acres of leafy spurge (Euphorbia esula) infestations were discovered on public lands in the Horse Creek watershed in the southwestern corner of Natrona County, Wyoming. The public lands in this region of Natrona County are administered by the Rawlins BLM District. The Rawlins District, the Wyoming Department of Agriculture, and the Natrona County Weed and Pest District agree that control and containment of these incipient E. esula infestations is both required by law and necessary to prevent further dispersal of the weed.

Efficacious control of established leafy spurge populations infesting non-cultivated lands requires the use of certain herbicides that are known to effectively control broad-leafed perennial weeds (1). Chemical weed control is an action that may significantly affect the quality of man's environment. Therefore, as required by NEPA, an environmental assessment must be prepared prior to implementation of such an action.

In 1976 the Wyoming Department of Agriculture proposed to chemically treat 416.6 acres of designated noxious weeds infesting public lands in the North Platte River Valley south of Saratoga, Wyoming. Leafy spurge and Canada thistle were the primary target species. An extensive environmental assessment document, the North Platte River Area Designated Noxious Weed Treatment Program Environmental Assessment Record (North Platte EAR) (2), was subsequently prepared and the proposed program was approved by the USDI in July, 1979.

The North Platte EAR provides extensive information on (a) the various herbicide formulations and application methodologies, (b) an intensive analysis of the environmental fate and toxicology of each herbicide, (c) a complete discussion of the potential direct and indirect effects of the program on each environmental component, and (d) a detailed discussion of recommended mitigative procedures that would be utilized to minimize potential environmental hazards.

Some of the factors considered in the North Platte EAR that could present a potentially significant environmental hazard were:

1. Herbicide contamination of surface and ground waters.
2. Potential toxicological effects on the fisheries, especially salmonid species, that occur near treatment sites.
3. Adverse and beneficial effects on the vegetation community from non-target vegetation loss.
4. Effects of vegetation changes on critical wildlife habitat; i.e. critical big game winter range, stream bank habitat important to certain fisheries, and habitat needs of other wildlife species.
5. Potential impacts on threatened and endangered plants and animals.

The North Platte EAR concludes that the most significant environmental impacts that may occur would result indirectly from the effects the program would have on the non-target vegetation present in and near the individual treatment sites. It is expected that some wildlife species, i.e. birds, mammals, invertebrates, may suffer from the initial loss of food, cover or nesting sites. It is also anticipated that some other wildlife species may benefit from an increased food supply or increased availability of cover or nesting sites.

It is proposed by the Natrona County Weed and Pest District to implement a treatment program to control the leafy spurge infestations

in Natrona County. The control program would utilize the methodology described in the North Platte EAR. Since the program area is also administered by the Rawlins District it is considered prudent to develop the Horse Creek watershed leafy spurge control program environmental assessment as a supplementary document to the North Platte EAR.

II. PROPOSED ACTION AND ALTERNATIVES

PROPOSED ACTION

The leafy spurge infestations proposed for control in this program occur within the 109,710 acre Horse Creek watershed in southwest Natrona County (Figs. 1 and 2). It is proposed to control, with Tordon bead applications, the infestations which comprise a total of approximately 30 acres. The treatment program is scheduled to begin in October, 1979 and continue through the fall of 1983. Table 1 lists the location, approximate acreage of each E. esula infestation, the herbicide and application method that would be employed, and the optimum treatment time. The Wyoming Department of Agriculture would be responsible for coordinating activities such as permit acquisition, and the Natrona County Weed and Pest District personnel and contractors would conduct the actual herbicide application operation.

The Tordon beads would be applied at the label recommended rate of two pounds active ingredient per acre using PCB spreaders or shaker type granular applicators. To avoid surface run-off that may occur in spring and early summer the herbicide would be applied after July 15. Additionally, the beads would not be applied during periods of precipitation or when windy conditions are prevalent. These application procedures will be strictly followed at all times.

UNITED STATES
RTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
MC CLEARY RESERVOIR QUADRANGLE
WYOMING-NATRONA CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
RATTLESNAKE HILLS
Horse Heaven
Lake Reservoir
McCleary Reservoir
CRI Ranch
CRI School
Mapped, edited, and published by the Geological Survey as part of the Department of the Interior program for the development of the Missouri River Basin
Control by USGS
Topography from aerial photographs by multiplex methods and plane-table surveys 1951
Aerial photographs taken 1946-1948
Polyconic projection. 1927 North American datum
10,000-foot grid based on Wyoming coordinate system, east central zone
Dashed land lines indicate approximate locations
1000-meter Universal Transverse Mercator grid ticks, zone 13, shown in blue
UTM GRID AND 1961 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET
SCALE 1:24 000
CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL
ROAD CLASSIFICATION
Heavy-duty
Medium-duty
Light-duty
Unimproved dirt
U.S. Route
State Route
MC CLEARY RESERVOIR, WYO.
1951
AMS 4689 III NW—SERIES V874

Figure 1. Proposed treatment sites within the Horse Creek Watershed

Figure 2. Proposed treatment sites within the Horse Creek Watershed

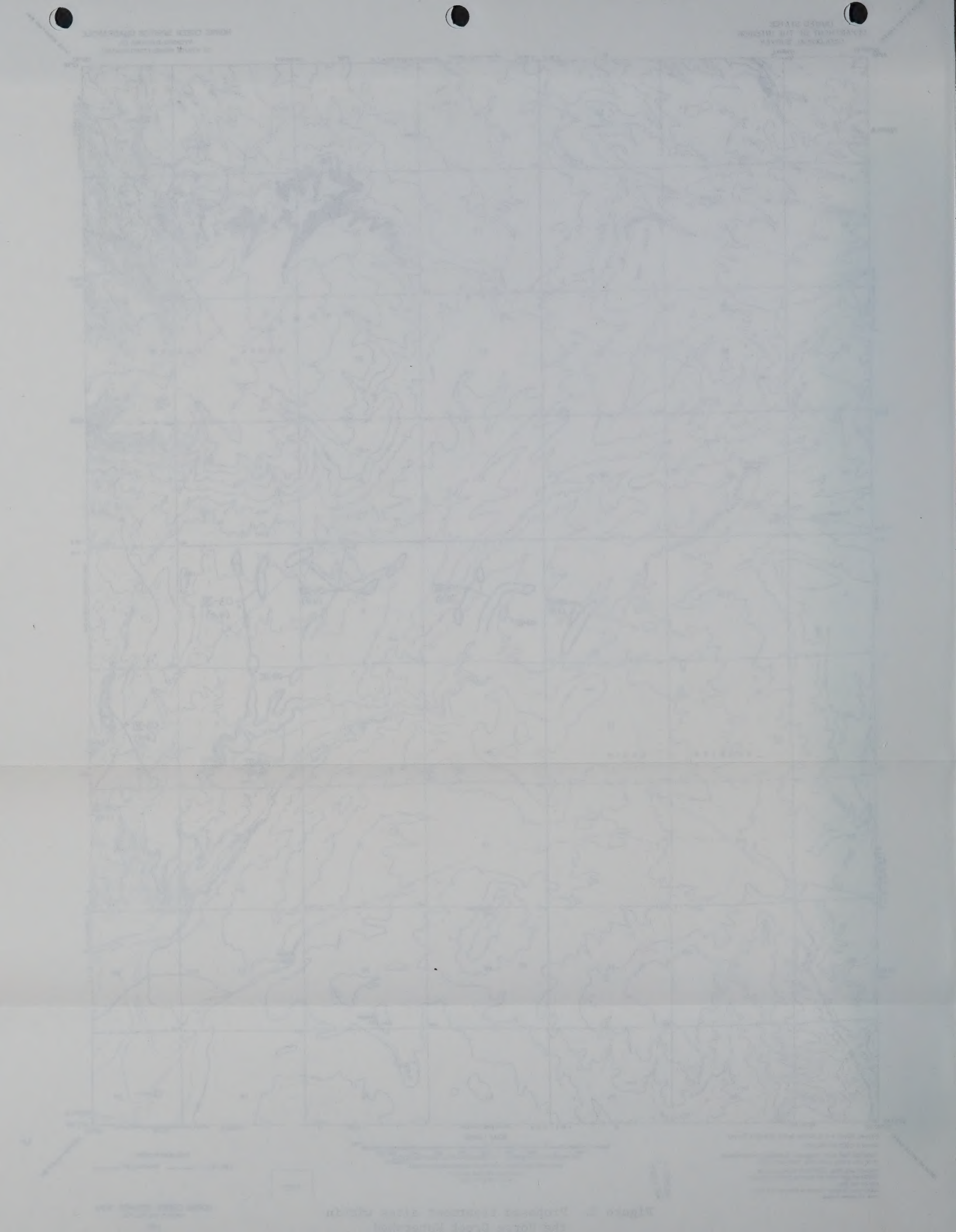

Table 1. Natrona County Weed & Pest Control District

Weed Species	Code	Township & Range	Section	Sub-Section	Acres Infestation	Herbicide Applied	Method[1] Appli.	Time of Appli.	Phenotypic Stage of Growth
				HORSE CREEK SPRINGS QUADRANGLE					
Leafy Spurge	03	T31NR86W	1	NW¼SE¼,SE¼SE¼	3.0 acres	Tordon Bead	III	June to Sept.	Bud to Maturity
Leafy Spurge	03	T31NR85W	4	N½NW¼,SE¼SW¼	4.0 acres	Tordon Bead	III	June to Sept.	Bud to Maturity
			5	NE¼SE¼,NE¼NE¼, SE¼NW¼,NW¼NW¼	4.0 acres	Tordon Bead	III	June to Sept.	Bud to Maturity
			6	S½NW¼,SW¼NE¼, NW¼SE¼	5.0 acres	Tordon Bead	III	June to Sept.	Bud to Maturity
			9	S½NW¼,W½SE¼, E½NW½	6.0 acres	Tordon Bead	III	June to Sept.	Bud to Maturity
			10	SW¼SW¼,W½NE¼	3.0 acres	Tordon Bead	III	June to Sept.	Bud to Maturity
			15	NE¼NW¼	1.0 acre	Tordon Bead	III	June to Sept.	Bud to Maturity
Leafy Spurge	03	T32NR85W	32	SW¼SW¼SE¼	0.5 acres	Tordon Bead	III	June to Sept.	Bud to Maturity
				MCCLEARY RESERVOIR QUADRANGLE					
Leafy Spurge	03	T31NR85W	12	SW¼SE¼	1.5 acres	Tordon Bead	III	June to Sept.	Bud to Maturity
			13	NE¼NE¼NW¼, NW¼SE¼NW¼	2.0 acres	Tordon Bead	III	June to Sept.	Bud to Maturity
				Total acres	30.0 acres				

[1] I - ground units (liquid formulation) a. hand spray gun; b. spray boom.

II - hand sprayers (liquid formulation)

III - hand spreaders (granular applicator) a. PCB spreaders; b. shakers.

Additional and more specific information describing the Tordon bead herbicide formulation and the application methodology is present in Chapter II of the North Platte EAR.

ALTERNATIVES

No action, preventive measures, physical control, and integrated management are available as alternatives to the proposed chemical control program. At the present time a biological control agent has not been discovered that is compatible with the Wyoming climate and that will effectively control leafy spurge.

The no action and preventive measures alternatives would not accomplish the objective of the proposed action, which is to control and contain the present weed infestations. Physical control methods such as hand grubbing could be used to control leafy spurge. However, leafy spurge is a perennial weed and repeated seasonal and annual grubbing operations would be required to achieve effective control. Integrated weed management involves utilizing all available control methods, that include chemical, physical, preventive and biological, and "integrating" these methods into a workable "management" program. An integrated weed management program would be the most effective means of controlling designated noxious weeds as well as minimizing adverse environmental and economic impacts of the control programs. More extensive information describing each of these alternatives is presented in Chapter II of the North Platte EAR.

III. DESCRIPTION OF THE EXISTING ENVIRONMENT

The program area is located in the southwestern portion of Natrona County. The treatment sites, indicated in Figs. 1 and 2, are located within the area described as Township 31 North, Range 85 West. A small, three acre and a one half acre treatment site are located in

section 1 of Township 31 North, Range 86 West and section 32 of Township 32 North, Range 85 West, respectively. Specific legal descriptions of each treatment site are listed in Table 1.

There is a paucity of recent information with which to accurately describe the present environmental conditions in the proposed program area. The most proximate area for which recent information exists is the Carbon Basin area located approximately 64 miles to the southeast (3).

The climate in the program area is characterized by fairly moderate seasonal temperatures and low precipitation amounts. Temperatures average around 45° F annually with extremes dipping below 0° F during some winter months and exceeding 89° F in mid-summer. Average annual precipitation is low, averaging between 10 and 15 inches. Most precipitation occurs in the spring and early summer during March, April and May.

The topography in the program area is characterized by rolling hills and low mesas that are dissected by numerous dry gulches and ephemeral tributaries to Horse Creek. Elevations in the general area range between 6200 and 7200 feet. Actual elevations of the proposed treatment sites range between 6200 and 6600 feet (Figs. 1 and 2).

Soils in the general region are described as torriorthents-haplargids rock outcrop association which can be generally described as shallow, cool, coarse to fine loamy soils. Site specific information on the soil characteristics is not presently available.

The surface water nearest to the treatment sites is Horse Creek which is bordered entirely by private and state owned lands. All of the proposed treatment sites are located near dry gulches and ephemeral drainages of Horse Creek. Additional information to characterize the

surface and ground water characteristics is lacking.

The vegetation in the program area is predominately a sagebrush-grass association. A 1959 range survey conducted by the BLM indicates that the major shrub species are big sagebrush (Artemisia tridentata) and rubber rabbitbrush (Chrysothamnus nauseosus). Dominant grass species include Sandberg bluegrass (Poa secunda), bluebunch wheatgrass (Agropyron spicatum), western wheatgrass (Agropyron smithii) and needle-and-thread grass (Stipa comata). Tree cover is sparse but juniper (Juniperus spp.) and limber pine (Pinus flexilis) occur infrequently on the surrounding ridge tops (4).

The existence of rare or endangered plant species in the program area has not been documented; however, this does not preclude the possibility of the presence of such a species. The plant species listed in Table 2, following, may be present in the program area.

Table 2. Proposed rare and endangered plants known to occur in the geographic region of the program area (5).

Species	Location	Habitat
Artemesia porteri	Fremont County; 40 miles west of program area	Desert basin zone; 6000' Elev.; dry, loose shaley soil
Oryzopsis contracta	Distributed into south-central Natrona County	Desert basin zone; 5500' to 7000'; sandy soils
Penstamon paysoniorum	Fremont County; 40 miles west of program area	Foothills scrub zone; 6500' 7500'; sandy creek bottoms, alkaline shale bluffs, dry hills
Townsendia spathulata	Natrona County 25 miles east of program area	Hills and mountains; 6000'-8000'; Foothills scrub zone

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Little is known of the present status of the wildlife populations that inhabit the program area. The mammalian, avian, reptilian, amphibian, and fish populations that inhabit the area have not been inventoried recently; therefore, it is difficult to accurately describe the status of these populations. The wildlife considered the most sensitive to the habitat changes that may occur following weed control operations on rangeland are: (a) big game, (b) prairie dogs, (c) sage grouse, (d) fishes, and (e) endangered or threatened species. Some limited information is available which describes the status of these wildlife species in the Horse Creek Watershed.

The most current information provided by the Wyoming Game and Fish Department and the BLM indicates that mule deer and pronghorn probably utilize the region as yearlong summer and winter range; other big game species do not inhabit the area (6,7). The program area is not known to be a critical winter use area for either species. A mule deer critical habitat area exists approximately five miles north of the proposed program area (6). The Game and Fish Department also indicates that there are no prairie dog colonies known to exist in the proposed program area vicinity (8).

According to wildlife biologists in the BLM Rawlins District Lander office, sage grouse populations do inhabit the area. Current information defining population sizes and special habitat features such as strutting grounds and wintering areas, is not available. Additionally, little is known of other avian species that may inhabit the area (4).

As shown in Figs. 1 and 2, all of the treatment sites in the program area are adjacent to dry gulches or ephemeral streams where fisheries would not be present. The nearest waterway that supports a fishery is Horse Creek, which is designated a class four fishery by the

Wyoming Game and Fish Department. Low production waters generally incapable of sustaining substantial fishing pressure, but frequently of local fishing importance defines a Class 4 fishery (9). Fish species known to inhabit Horse Creek are brown trout and suckers (10).

The presence of any endangered or threatened species in the program area has not been documented. Clark and Dorn (11) report that no black-footed ferrets have been sighted in Natrona County since 1970. Bald eagles may migrate through the area but none are known to nest or winter there. The Lander BLM office reported a peregrine falcon sighting (unconfirmed) approximately 10 miles east of Jeffrey City, which is approximately 30 miles west of the proposed program area.

IV. ANTICIPATED IMPACTS OF THE PROPOSED ACTION AND THE ALTERNATIVES

INTRODUCTION

In the following impacts analysis a majority of the information utilized to make the impacts assessment per each environmental component is presented in the North Platte River Area Designated Noxious Weed Treatment Program Environmental Assessment Record (2). Information pertaining to the herbicide chemical characteristics, environmental fate and toxicology, and the expected environmental consequences germane to each environmental component is discussed in great detail. A majority of this information and the related environmental impacts assessment is considered relevant and applicable to the proposed Horse Creek Watershed Leafy Spurge Control Program and will not be reiterated in this supplemental assessment.

The most significant environmental effects that could be expected from the proposed program would result indirectly from target and non-target vegetation loss. Tordon herbicide is relatively non-toxic to

birds and mammals, but some invertebrate species are less tolerant (2). It is improbable that a terrestrial vertebrate or invertebrate species would be adversely affected if directly exposed to the Tordon bead herbicide levels that would be present following weed treatment.

Impacts on the air, aquatic plants, aquatic mammals and birds, fishes and invertebrates are not expected to occur since none of the proposed treatment sites are located near surface waters. The soil, terrestrial vegetation, terrestrial mammals, birds, and invertebrates may be adversely or beneficially affected by the direct or indirect effects of the weed treatment program. Specific details of the environmental risk or benefit to the components of critical concern in the Horse Creek program area follows.

SOIL

Some soil erosion is expected to result on sites that are severely infested with E. esula. On most sites grasses and big sage (Artemisia tridentata) would survive treatment; thus, minimizing the erosion potential (2).

TERRESTRIAL VEGETATION

The terrestrial vegetation community is likely to be the environmental component most significantly affected by the proposed leafy spurge control program. In total, nearly 30 acres of E. esula infestations would be treated. The target and non-target broad-leafed plants within, and immediately adjacent to, the treatment sites would be weakened or destroyed. If any of the four endangered plants described in Chapter III are present in a treatment site, the plants would be

destroyed. Most grass species are tolerant to Tordon and may be beneficially affected by reduced weed and other broad-leafed plant competition.

On a site specific basis the broad-leafed vegetation occupying some of the larger treatment areas would be impacted. Whether this impact can be construed as adverse or beneficial is open to question since only the broad-leafed plants, which would primarily be the non-native weeds, would be affected.

TERRESTRIAL WILDLIFE

Mammals

As stated in Chapter III, mule deer and pronghorn antelope probably utilize the program area as yearlong summer and winter range. The area encompassing the treatment sites is not a critical use area for either species; therefore, significant adverse effects are not expected to result from the vegetational changes that may occur.

Other mammals present in the program area may also be affected indirectly by the changes that would develop in the vegetation community. Removal of the target weeds and some non-target plants such as rabbitbrush and other susceptible broad-leafed plants, may reduce the availability of food cover and nesting sites for small mammals such as; deer mice (Peromyscus maniculatus), jumping mice (Zapus spp.), voles (Microtus spp.) and other small rodents. In a few areas where the size of the weed infestation requires that herbicide be applied to an area larger than one-quarter of an acre in size, permanent adverse impacts to some small mammals would occur. The scattered nature and small size of most of the weed infestation sites in the program area precludes

the possibility of any significant adverse impacts to most small mammals.

Domestic Livestock

Domestic livestock production stands to benefit from the proposed program. The weed species are not useful forage for livestock and the herbicide proposed for use has little effect on grasses; therefore, weed removal would allow the advent of more abundant, more useful grass species. Adverse effects on domestic livestock are not expected.

Birds

The sage grouse is dependent on certain critical areas of its habitat. A strong site tenacity is exhibited toward strutting grounds where important reproductive behavior takes place. As indicated in Chapter III sage grouse are known to inhabit the program area, but special use areas such as strutting grounds and wintering areas have not been identified. Big sage (A. tridentata), a critical component of sage grouse habitat, is tolerant to Tordon herbicide and would not be affected; therefore, significant impacts on sage grouse or their habitat are not expected.

Indirect impacts on other terrestrial birds that inhabit the region are not expected to be significantly adverse. Removal of target and some non-target vegetation may result in reduced food supplies (plant fruits or invertebrates dependent on plants), and cover and nesting sites for some passerine and gallinaceous birds. The larger the treatment site the greater this impact would be on a site specific basis.

Endangered Species

It is stated in Chapter III that no endangered animal species are

known to inhabit the program area. Migrating bald eagles could use the area seasonally for brief periods. No impacts are expected on a bald eagle that may enter the proposed program area (2).

ANTICIPATED IMPACTS OF THE ALTERNATIVES

A complete documentation of the anticipated impacts of the alternatives to the proposed action is contained in the North Platte EAR. The integrated management approach is considered to be the only feasible alternative, relative to the control and containment objective of the proposed program.

MITIGATIVE MEASURES

The following mitigative measures were taken from the North Platte EAR and are deemed to be pertinent to the proposed program. The following mitigative measures, where applicable, should be adhered to:

1. Tordon should not be applied to the same treated area more often than once a year.

2. Treatments in the riparian zones should be made only in sites above the year's high-water line, and should be made to avoid contamination.

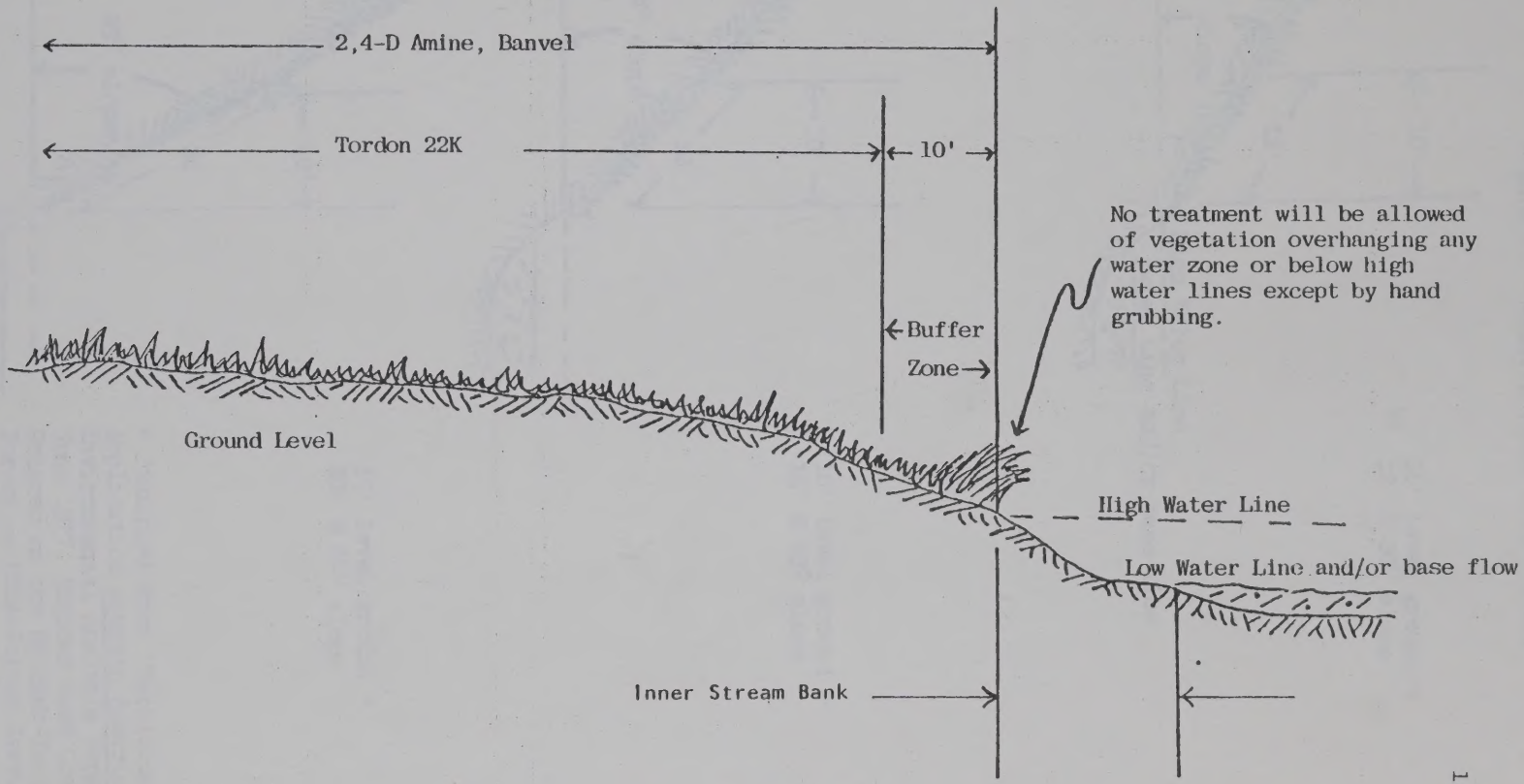
3. Weeds which overhang any live water zone should not be treated with Tordon, but should be controlled by mechanical means.

4. Tordon should not be applied to irrigation and drainage ditches and inner stream banks.

5. Tordon should be applied in the riparian zones according to the Aquatic Restriction Charts, Figs. 3 and 4. In the event that leafy spurge infestations occur inside the limits imposed by Figs. 3 and 4, Banvel herbicide must be used for treatment. Refer to the North Platte EAR for information pertaining to Banvel herbicide characteristics and the application methodology.

6. In areas where soil conditions are unstable and/or dense stands of designated weeds are removed, reseeding by BLM with desirable grasses would reduce soil erosion.

Figure 3. Herbicide ground application aquatic restriction chart.


2,4-D Amine, Banvel
Tordon 22K
10'
No treatment will be allowed of vegetation overhanging any water zone or below high water lines except by hand grubbing.
Buffer Zone
Ground Level
High Water Line
Low Water Line and/or base flow
Inner Stream Bank

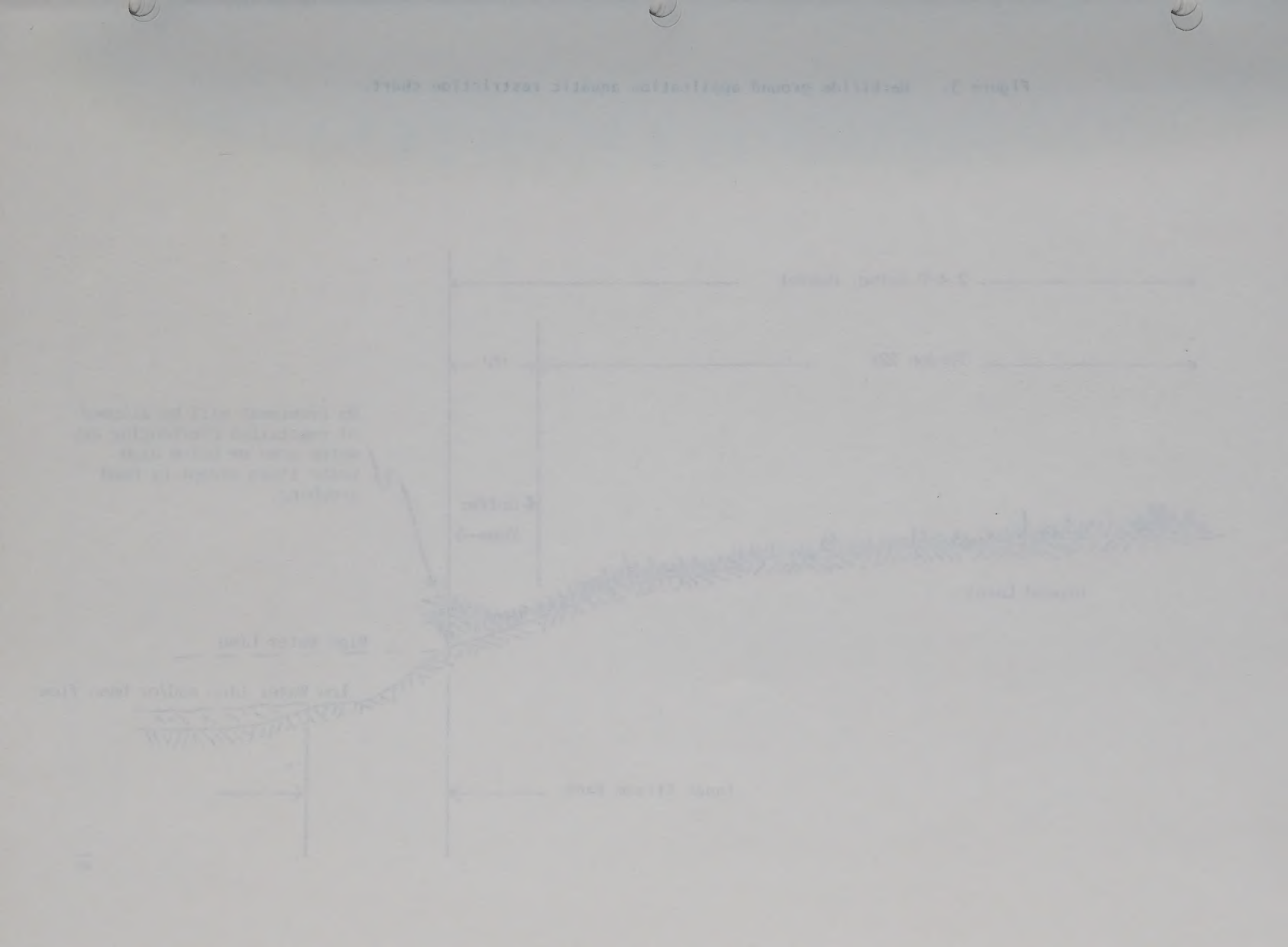
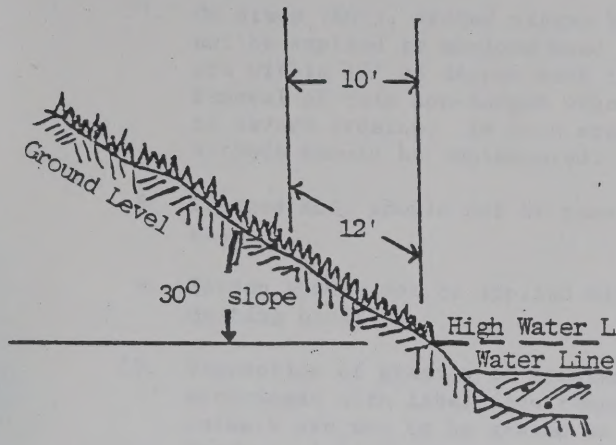
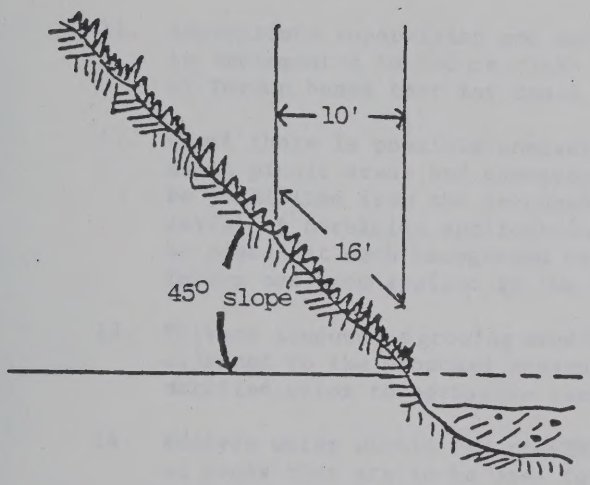


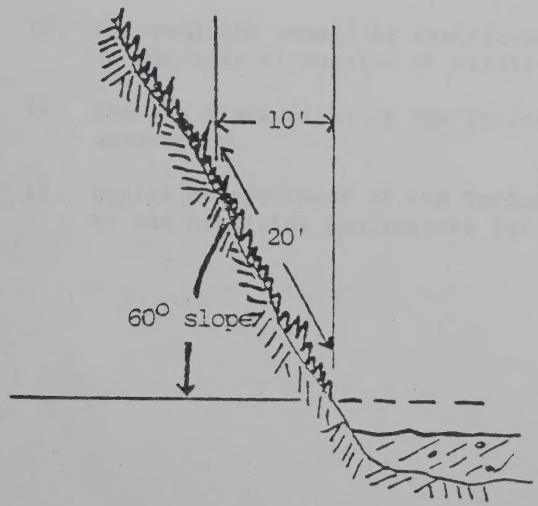
Figure 4. Aquatic slope restrictions.



10' level ground =
12' @ 30° slope

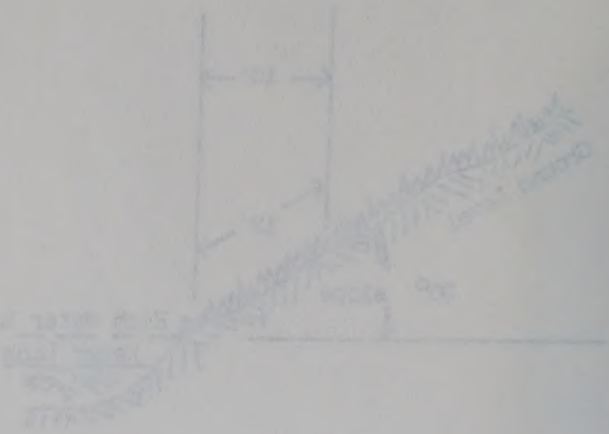


10' level ground =
16' @ 45° slope



10' level ground =
20' @ 60° slope

* Modified from "Herbicide Ground Application Aquatic Restriction Chart" Environmental Analysis Report, June 1977, Noxious Weed Control Program on the Bridger-Teton National Forest — USDA-Forest Service, Region 4.



7. On steep (60°), eroded stream banks, Tordon should not be applied to noxious weed infestations that are within 10' of stream bank interface vegetation. Removal of this non-target vegetation would contribute to severe erosion. In such areas physical control methods should be implemented.

8. Treated soil should not be removed from the treatment site.

9. Tordon should not be applied within 10 ft. of ground-nesting birds.

10. Resumption of grazing on treated land should be in accordance with label requirements. Lactating dairy animals are not to be grazed on areas treated with Tordon. Animals grazed on Tordon treated areas should not be transferred to areas with broad-leafed crops without allowing at least 7 days on untreated grass pasture, since urine may contain enough picloram to cause crop damage.

11. Appropriate supervision and safety precautions should be implemented to reduce risks of accidental spills of Tordon beads that may cause soil sterility.

12. Where there is possible contact with the public, such as in picnic areas and campgrounds, the public should be prohibited from the proposed treatment site on the day(s) of herbicide application. In addition, it should be posted at each campground or picnic area that Tordon has been applied in the area.

13. Private landowners growing sensitive crops, with land adjacent to the proposed treatment sites, should be notified prior to herbicide application.

14. Analyze water within the treatment sites which collects in ponds that are to be used for irrigation of crops, gardens or stock watering.

15. All vehicles should be restricted to designated roads to minimize disruption of wildlife habitat.

16. The use precautions of the Tordon label should be closely adhered to.

17. Copies or specimens of the Tordon label should be carried by the herbicide applicators for reference.

18. All safety equipment which is recommended by the manufacturer's label such as; gloves, boots and goggles should be worn by the applicator during the handling and application of the herbicide.

19. Final mixing and applications of Tordon should be conducted by a certified applicator or under the direction of a certified applicator.

20. Equipment and containers used for applying Tordon beads, should not be reused for other materials.

21. The Tordon label recommendations for cleaning and disposal of containers and equipment should be followed explicitly. Cleaning application equipment near streams or surface waters should not be allowed. In addition, herbicide containers will be disposed of in accordance with the technical recommendations of the Solid Waste Management Division of Wyoming Department of Environmental Quality and the Wyoming Department of Agriculture.

22. The County Weed and Pest Control District supervisors should notify the Rawlins district BLM office of the location and date of herbicide applications prior to initiation so that a BLM Compliance Specialist can be on-site during all operations on public lands.

23. BLM should notify the Water Quality Division of the Wyoming Department of Environmental Quality of location and date of all herbicide applications on public lands.

RESIDUAL IMPACTS

The residual impacts section in Chapter IV of the North Platte EAR (2) documents the impacts anticipated to result, following implementation of the recommended mitigative measures. The specific environmental components relevant to the Horse Creek Watershed supplement are; (a) soil, (b) terrestrial plants, and (c) terrestrial vertebrates. After implementing the mitigative procedures outlined, these components would still be affected by the proposed action. However, the adverse effects are not expected to be significant.

V. LISTS OF PREPARERS, PERSONS, GROUPS AND AGENCIES CONSULTED

Prepared under the direction and supervision of George F. Hittle, Weed and Pest Coordinator, Wyoming Department of Agriculture

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